PTFE). Thus, the housing **26** defines a space **30** that has, as far as microwaves are concerned, an opening, provided by the window **28**.

The space **30** contains a cylindrical pillar **32** of insulating material (e.g. PTFE) that acts as a brace between the window **28** and the flat face of the brass housing **26**. The diameter of the pillar **32** is stepped such that part **32***a* of the pillar has a smaller diameter than part **32***b*. The axis of the pillar **32** is substantially coincident with the axis of the cylindrical housing **26**. Two metal rings **34** and **36** are mounted snugly on the pillar **32**, on parts **32***a* and **32**, respectively. It should therefore be apparent that the rings **34** and **36** are circular and that ring **34** has a smaller diameter than ring **36**. The axes of the rings **34** and **36** are coincident with the axes of the pillar **32** and the housing **26**. The rings **34** and **36** are spaced apart along the axis of the pillar **32**. The rings **34** and **36** are discontinuous. That is to say, each of rings **34** and **36** is broken by a small gap.

Diametrically opposed ports are provided in the curved wall of the housing **26** and the coaxial cables **18** and **20** extend through respective ones of these ports and a short way into the space **30**. Thus, cable **18** delivers microwaves to the space **30** and cable **20** receives microwaves from the space. The rings **34** and **36** are largely responsible for the coupling of microwaves from cable **18** into cable **20**, and dictate the principal features of the spectrum obtained from the sensor **12**. The central conductor of the coaxial cable **18** is, at the end of the cable that protrudes into the space **30**, formed into a loop **18***a*. Likewise, the central conductor of the coaxial cable **20** is, at the end of the cable that protrudes into the space **30**, formed into a loop **20***a*.

The sensor is in essence a microwave resonator. A typical spectrum obtained from sensor **12** in the absence of a subject is shown in FIG. **3**. The spectrum shows two prominent resonant peaks **38** and **40** at frequencies f**1** and f**2**, respectively. Peak **38** is due to ring **34** and peak **40** is due to ring **36**.

FIG. **4** shows what happens to the spectrum from sensor **12** when the window **28** is placed against a subject. To aid comparison, the spectrum of FIG. **3** is shown in FIG. **4** as a dashed line. It is apparent from FIG. **4** that peak **40** is largely unchanged and that peak **38** has become lower and broader and has moved down in frequency to f**3**. The height, width and centre frequency of peak **38** depends on the blood glucose level of the blood in the tissue in that part of the subject that is adjacent the sensor. Thus, the height, width and centre frequency of peak **38** can be monitored by periodically reacquiring the power versus frequency spectrum of the sensor **12** in order to discern changes in the subject's blood glucose level.

Peak **40**, on the other hand, acts as a reference peak since, as can be seen by comparing the parts of the solid and dashed traces in the region of f**2** in FIG. **4**, its characteristics are largely unchanged by the presence or absence of a subject adjacent the sensor **12**. This insensitivity is due to the fact that the ring **36**, to which peak **40** corresponds, is located sufficiently distant from the subject (it is further from the window **28** than is ring **34**) so as to be unperturbed by the subject. In contrast, from the perspective of ring **34**, the subject's tissue becomes an influential part of the microwave resonator that is the sensor **12**. Whilst peak **40** is not affected by the subject, it is still affected by systematic factors that affect both rings **34** and **36**. Examples of such systematic factors are temperature and humidity variations in the sensor's immediate environment, whether due to an adjacent subject or to the conditions of the wider environment.

With the aid of FIG. **5**, we will now discuss in more detail the measurements that are made on a spectrum that is acquired by the computer **24** from the VNA **16**. In fact, FIG. **5** reproduces the spectrum of FIG. **3**, although it is now overlaid with various measurement parameters, which are:

- Δf, which is the difference in frequency between the frequency f**1** of resonant peak **38** due to ring **34** and the frequency f**2** of the resonant peak **40** due to ring **36**.
- h**1**, which is the height of peak **38**.
- h**2**, which is the height of peak **40**.
- w**1**, which is the full width of peak **38** and its half-height.
- w**2**, which is the full width of peak **40** and its half-height.

The computer **24** measures these parameters in a received spectrum. Then, in order to remove bias due to systematic errors of the kinds mentioned earlier, a normalised peak height h_n=h**1**/h**2** and a width difference Δw=w**1**-w**2** are calculated. Moreover, a modified Q factor is calculated for peak **38**, Q=f**1**/Δw. The values Δf, h_n, Δw and Q are then used together to address a look up table (LUT) in the memory of the computer **24** to retrieve a value of the blood glucose level of the subject at the time the spectrum was captured.

Of course, many variations of the embodiment described above are possible without departing from the scope of the present invention. Some of these will now be described.

In one variant, the LUT is addressed by just the Δf value in order to return a blood glucose level reading. In other embodiments, other subsets of Δf, h_n, Δw and Q may be used to address the LUT.

For another class of embodiments, the NIBGM according to the invention is minaturised or "productised" or packaged for commercial use. Typically, this involves taking the functionality both of the VNA **16** that determines the microwave spectrum of the sensor **12** and also of computer **24** for determining a blood glucose level from a captured spectrum and putting that functionality into a smaller electronic package, where most, if not all of that functionality is provided by a single integrated circuit. In the same vein, a small and simple user interface would typically be provided, to enable a user to trigger an ad hoc blood glucose level measurement and to read off, e.g. from a small LCD screen, a most recently determined blood glucose level.

In other class of variants, the shape and/or the dimensions of the resonator that is the sensor **12** can be varied. For example, the reference ring **36** could be removed if compensation of systematic errors is unimportant or can be achieved through other means.

The invention claimed is:

1. A blood glucose monitor for non-invasive, in-vivo characterisation of a blood glucose level in a living body, the monitor comprising:

a microwave resonator having a resonant response to input microwaves and designed such that said response will experience a perturbation by a living body when the living body is in proximity or contact with the resonator; and

a detector arranged to detect changes in said resonant response from which said level can be characterised;

wherein the resonator is designed to feature a first resonance that will, and a second resonance that will not, experience a perturbation by a living body when the living body is in proximity or contact with the resonator.

2. A monitor according to claim **1**, wherein one or both of the first and second resonances manifest as a peak in the response.

3. A monitor according to claim **1**, wherein the first resonance experiences the perturbation as a change in one or more from a group consisting of frequency, phase and amplitude.

4. A monitor according to claim **1**, wherein the resonator comprises a housing defining a space with an opening to which said body can be offered, the housing including a